

## Unique Issues for the Female Soccer Player

---

Since the passage of Title IX in 1972, the number of females participating in sports and exercise has dramatically increased. There are numerous health benefits and risks that have resulted from increased participation. Although many medical issues relate to both men and women, there are some concerns specific to females.

The Female Athlete Triad, defined in the early 90's, represents a health risk to female athletes. **The Triad is defined by three separate medical disorders: disordered eating, amenorrhea, and osteoporosis.**

**Disordered eating** is a wide range of abnormal eating patterns including bingeing, purging, restricting food intake, or prolonged fasting. The individual may be using prescription or over the counter medicine to help them achieve control over food/weight. Inappropriate thought patterns such as preoccupation with food, distorted body image, fear of becoming fat, or dissatisfaction with one's body are also a components of the disorder. Disordered eating can range from moderate food restriction, occasional bingeing and purging to severe food restriction (anorexia nervosa) and regular bingeing/purging (bulimia nervosa). All are risks for developing serious hormonal, skeletal and psychiatric disorders.

The prevalence of the disorder among female athletes is reported between 15% to 62%. It is most commonly seen in sports where a lean body is considered essential (e.g. gymnastic, figure skating, dance, diving etc.), but can be seen in other sports as well. The treatment of disordered eating is best left to health care professionals. If you notice some of the behaviors, signs or symptoms listed in the tables, you need to try to get the player to seek help.

The second component of the Triad is **amenorrhea**. Primary amenorrhea is defined as the absence of menstruation by the age of 16. Secondary amenorrhea is the absence of 3 to 6 consecutive menstrual cycles in women who have already begun menstruating. The prevalence of this disorder in female athletes ranges from 3.4% to 66% as compared to 2% to 5% in the general female population. Never assume that any change in menstrual status in an athlete is due to training. A physician should always be consulted.

The last disorder of the triad is **osteoporosis**; premature bone loss or inadequate bone formation that results in decreased bone density. Estrogen is essential for the maintenance of bone density. Low bone density makes the bones weaker increasing the risk of fracture for the athlete. The prevalence of the disorder in female athletes is unclear. Women athletes suffer more stress fractures than men and low bone density is a likely cause. Current medical research indicates that osteoporosis may be irreversible.

All female athletes are at risk for developing the triad. We must be concerned about the player attempting to lose weight during the season. In season, she increases her energy output (increased exercise) while restricting energy intake (less food eaten). In an attempt to conserve energy, menstrual cycles may become irregular or absent. Less estrogen leads to the loss of bone density. Thus, you see how all three conditions are related. In-season is not the time to try to lose weight; the time for that is off-season.

There are some factors that may predispose the athlete to developing the Triad. Some internal factors are a focus on thinness, greater caloric output versus intake, and the athlete's ability to deal with life stressors. External factors that may influence the development of the Triad include pressure from others to perform, harmful training techniques, overly controlling coach/parent, social isolation, or family history of some component of the disorder. It is critical that you are aware of the risk factors, signs and symptoms of the triad.

*This sports science article comes from the Sports Medicine Section at the Duke University Medical Center and UNC Hospitals. The authors are members of the US Soccer Sports Medicine Committee including from UNC Dr. William E. Garrett, Jr (US National Teams Physician and Committee Chairman), and John Lohnes. From Duke are Dr. Don Kirkendall (exercise physiologist) and Patty Marchak (athletic trainer for 1996 US Women's Olympic Team).*